

In the Abstract

The present invention provides a A surface-treated steel sheet ~~including includes~~ a steel sheet; a plating layer ~~provided on at least one of the surfaces of the steel sheet, the plating layer~~ containing at least one metal selected from ~~the group consisting of~~ zinc and aluminum; a first layer film ~~provided on the surface of the plating layer and containing~~ (α) 1 to 2000 mg/m² of silica in terms of SiO₂, (β) a total of 1 to 1000 mg/m² of phosphoric acid groups in terms of P, (γ) a total of 0.5 to 800 mg/m² of at least one metal selected from ~~the group consisting of~~ Mg, Mn, and Al ~~in terms of a metal element~~, and (δ) 0.1 to 50 mg/m² of a tetravalent vanadium compound ~~in terms of V~~; and a second layer film formed to a thickness of 0.1 to 5 μm on the first layer film and containing a resin (A) having at least one type of functional group selected from ~~the group consisting of~~ OH and COOH groups, and at least one rust-proofing additive (B) selected from ~~the group consisting of~~ (a) a phosphate, (b) Ca ion-exchanged silica, (c) a molybdate, (d) silicon oxide, and (e) at least one organic compound selected from ~~the group consisting of~~ triazoles, thiols, thiadiazoles, thiazoles, and thiurams. ~~The surface-treated steel sheet has excellent corrosion resistance without containing hexavalent chromium in a coating, and also has excellent conductivity and coating appearance.~~